has fever and who has not as yet been emptied by diarrhea ought to be purged at once. Colon irrigation at the onset may do a great deal of good. The free administration of water is of the greatest importance. When air hunger develops sodium bicarbonate should be given at once by mouth, subcutaneously or intravenously. Compound chalk mixture is of value in many cases, and in the fermentative diarrheas does more good than bismuth. As to opium we should not slavishly follow a set rule and refuse to give it in all cases. The stimulants brandy and caffein are often needed. In the more uncommon protein form of fermentative diarrhea the stools are brown and foul instead of being green and acid smelling, as in the sugar form. Here a low protein and a fairly high carbohydrate diet is needed. Infectious diarrhea may arise in a number of ways, the most common one being direct infection of the mucosa by dysentery bacilli taken per os. The streptococcus and the Bacillus aërogenes capsulatus are probably etiological agents also. The general treatment is the same as that for fermentative diarrhea, which has been outlined. The feeding is quite different. As regards diet, cases of infectious diarrhea must be divided into two groups: The first group includes cases caused by the dysentery bacillus or more rarely by the streptococcus. The second group of cases is caused by the gas bacillus. The gas bacillus cases should be fed on a lactic acid milk with a low sugar while the dysentery ones should receive low protein and high carbohydrate.

Autoserum Treatment of Chorea.—Brown, Smith and Phillips (*British Jour. Children's Dis.*, 1919, xvi, 8) again bring up the subject of autoserum treatment of chorea, originally proposed and used by Goodman. They describe the technic and call special attention to the importance of suspending drug therapy for five days previous to the injection. Their results are: autoserum therapy has been productive of infinitely more satisfactory results than any other method of therapy, a cure of 77 per cent. of the cases being effected within three weeks' time. There have so far been no recurrences in a period of over a year and a half.

OBSTETRICS

UNDER THE CHARGE OF

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Extraperitoneal Cesarean Section in Infected Cases with the Carrel After-treatment.—Markoe and McPherson (*Surg., Gynec. and Obst.*, August, 1918) limit the use of the extraperitoneal operation to cases in which the child is living and the patient who is presumably infected and cannot be delivered of a living child through the normal passages. These conditions contra-indicated craniotomy or other vaginal interference for the maternal mortality of craniotomy in the lying-in hospital was 12.5 per cent., with a fetal mortality of 100 per cent. The writers believe that it is virtually impossible to have the peritoneal cavity open and not to infect it when the septic contents of the uterus must necessarily invade everything in the immediate surroundings when the child and placenta are removed. Markoe has performed 5 transperitoneal operations: 1 for the toxemia of pregnancy, 1 for justominor pelvis, 1 contracted pelvis, with a history of interference before admission, 1 with contracted pelvis, with repeated efforts for three days to deliver, and 1 with a history similar to the preceding. McPherson also performed the operation of extraperitoneal section with fairly satisfactory results. With the advent of the Carrel-Dakin method it seemed possible to rapidly sterilize these wounds and thus secure more prompt and perfect union, and the writers believe that the extraperitoneal section with the Carrel-Dakin method may be employed in patients in whom the child is living, but when the mother is infected and cannot be delivered of her child by the natural passages. The advantages of the operation are the avoidance of sepsis; the disadvantages are the fact that the operation is not easy and that injury may occur to surrounding tissues. The objections lie in the fact that the operation is not simple and in inexperienced hands may prove formidable. The operation is not one to be adopted by the general practitioner but by those with hospital facilities and surgical experience.

Obstetrical Anesthesia during Labor.—PALMER (*California State Jour. Med.*, 1918, No. 16) gives his results in the use of nitrous oxide and oxygen in the clinic of the Stanford University Medical School. It was found that substance does not delay labor in the second stage and that it may be so given as to shorten the duration of labor or the use of forceps. The continued administration of nitrous oxide and oxygen, or a moderate degree of anesthesia is best, using a small quantity of ether as the child is delivered from the perineum to secure relaxation. It is best not to secure relaxation by decreasing the amount of oxygen given, as this is always dangerous and especially so in obstetrics. If greater relaxation is desired than is ordinarily given by gas the addition of ether is safer. In version and in any operation when it is especially desired to secure relaxation gas with ether or ether and oxygen made the best combinations. The use of nitrous oxide and oxygen seems to have no effect upon the occurrence of postpartum hemorrhage. It tends to prevent lacerations and may be employed in suitable cases in the performance of Cesarean section. It was found that the cost of the gas necessary for a case was $2.50, and that if the patient would pay that it would reimburse the hospital for the expense.

The Effect of Placenta on the Growth of the Fetus and the Newborn Child.—HAMETTE (*Jour. Biolog. Chem.*, December, 1918, No. 36) conducted investigations to ascertain whether the use of desiccated placenta to nursing women would have an effect upon the chemical composition of the milk, whether it would improve the nutrition of infants so fed. He found that, aside from any change in the constituents of the milk, the administration of placenta to the mother stimulated the growth of the child. These patients were given 10 grains of desiccated placenta three times daily. Only those were selected who had normal labors and only those children were studied who were fed exclusively by the mother. The mother's diet and the methods of keeping track of the infants were those which the observer had previously employed with success. The results were striking and apparent. In each child there was much less loss of weight after birth. The gain in weight was more rapid and the gain in daily weight was unusually large. By the thirteenth day the child had gained 60 per cent. over its original weight. There can be no question concerning the accuracy of the observation, as the results were so striking that they could be ascribed to nothing else. It was found that the infants thus fed had a greater capacity for growth than those whose mothers were not so treated. Very careful comparative measurements were taken of the breasts in a large series of cases in the women who were taking desiccated placenta and those who were not. The time when the milk came in full was accurately noted in these cases and it was found that there was no essential hypertrophy of the gland or increased milk production. The conclusion is reached that desiccated placenta contains some substance or substances which pass through the maternal body, retaining their active properties; passing into the child's body through the milk these substances stimulate the growth of the infant.

Obstetric Science and Art in the Service of the Nation.—Davis (*Jour. Am. Med. Assn.*, December 7, 1918) calls attention to recent discoveries which have improved obstetric practice and some dangerous tendencies at the present time. Among these he especially draws attention to the abuse of pituitrin. The treatment of puerperal septic infections by vaccines and sera, while it has not proved of great value, still may be in the future more efficient. There has been great improvement in our knowledge concerning the toxemia of pregnancy and the recognition of the fact that pernicious nausea and vomiting depend upon that cause. In obstetric surgery especial gains have been made which are already doing much to make the mother's recovery from labor complete and to rescue her from becoming an invalid. When, however, the general field of obstetric practice is investigated it is found that there is great room for improvement. The trouble lies in the circumstance that careless and sometimes ignorant and unscrupulous physicians continue to undertake complicated and difficult deliveries without adequate assistance and in the most unfavorable surroundings. The multiplication of maternity hospitals, good roads and motor cars make it possible in many cases to remove the patient promptly to the hospital. Improvement in medical education, especially among students, should lead to the prompt recognition of serious complications and the avoidance of inefficient efforts to deliver the patient by inadequate means. There are many interesting problems in obstetrics still remaining for solution, among them the importance and varying manifestations of infection by the Bacillus coli communis. It has been abundantly proved by clinical observation that the pregnant patient is especially prone to this complication and that it may affect the appendix, the gall-bladder or the kidney. There will be no essential diminution in the mortality and morbidity of puerperal septic infection until complicated cases of obstetrics are considered as important, as dangerous and as imperative as appendicitis, infection of the gall-bladder or other acute and serious abdominal conditions. If the general practitioner would abstain from fruitless efforts to deliver in such cases and promptly summon competent obstetric aid the lives of many mothers and children would be saved. The importance of maternity hospitals can scarcely be overestimated in this regard. In the present condition of the world it is of the greatest importance that a sound and vigorous population be given to the United States. Hence the value of improvements in obstetric education and practice.

An Operation for the Relief of Pyloric Obstruction in Infants.—CUPLER (*Surg., Gynec. and Obst.*, August, 1918) describes his operation as follows: The stomach is emptied, ether given, incision made along the upper right rectus splitting the muscle. The tumor in the stomach is then delivered and held firmly between the thumb and index finger and a longitudinal incision, 2 or 3 cm. in length, is made through the serosa and circular muscle fibers down to the thickened mucosa. After the muscle is divided the observer can detect a definite line of cleavage between muscle and mucosa. Blunt forceps, or small retractors, may be used to spread the incision apart. If the muscle be freed just sufficiently the mucous membrane will protrude into the wound. There is very little hemorrhage. Occasionally a small vessel will require ligature. Usually the application of a warm pad to the wound edges will control the oozing. In spreading the incision it is best to start at the stomach end of the incision, as here the merging of the stomach wall into the pyloric tumor is a gradual process and but little danger of entering the mucosa; whereas, the change from the thick and edematous pylorus to the neighboring duodenum is so sudden as to cause us to avoid opening the intestine at this point. The serosa is freed from the muscle enough to allow coaptation of the edges without tension, and this permits the muscle to remain in a supported position. The serosa is then brought together by two or three sutures. This operation differs from the Ramstedt procedure only in the fact that the serosa is made to cover the mucosa Ramstedt's experience shows that there need be no fear of leakage and peritonitis. The wound should be closed in layers without drainage. The skin closed with linen, the abdomen reinforced by the application of a wide circular adhesive band. The postoperative care consists of early feeding 2 or 3 drams of diluted milk four or five hours after the operation. One to three ounces every four hours on the third day. Overfeeding is to be avoided, for edema at the operative site may occur and the symptoms return. Withdrawal of food and gastric lavage will usually correct the condition. Hypodermoclysis is often needed. The writer has employed this method in two cases. Downes describes the postmortem findings of an infant dying of endocarditis three months after a successful Cesarean operation. In this case the stomach removed showed an elliptical cicatrix on the anterior surface of the pylorus about half the size of the original wound. This area was covered with serosa and appeared to consist of serosa and mucosa only.

A Method for Determining the Maturity of the Fetus in Utero.—THOMS (*Surg. Gynec., and Obst.*, May, 1918) examines a patient to determine the maturity of the fetus by making the usual vaginal examinations, passing one or more fingers to the cervix, and if the vertex or breech is in the birth canal it may be easily palpated through the anterior fornix. If the presenting part is too high up, slight pressure upon the fundus toward the symphysis will bring the presenting part down so it may be palpated. With the examining hand in position the finger resting against the fetal head and in a line corresponding with the longitudinal axis of the fetus, an assistant measures with the pelvimeter the distance from the uppermost point of the buttocks through the abdominal wall to any easily available point on the examining hand outside the vulva. The index finger of the other hand of the examiner is now placed at the point against the tip of the pelvimeter. The reading is made, and with the finger-tip of the non-examining hand still in position the examining hand is withdrawn from the vagina. The distance from the tip of the examining finger to the point where the pelvimeter rested is now measured. This reading subtracted from the former reading will give the distance from the vertex to the uppermost point of the buttocks after subtracting a small amount for the thickness of the abdominal and uterine walls. If the examining finger has rested against the fetal head itself through the patent cervical canal it is the custom of the writer to deduct 1.5 cm. before multiplying by 2. If, however, the palpation has been made through the anterior fornix, either rectally or vaginally, 2 cm. are deducted. Up to the present time in cases where measurements have been made before and after birth results have been gratifying. The employment of the rectal route is obvious and requires no further description. The length of the floated child *in utero* may be determined with greater accuracy in this way than in external abdominal methods. This method is deserving of wider use, no special instruments being required. It is rapid and conflicts in no way with asepsis.

The Clinical Types of Puerperal Fever with Reference to Prognosis and Treatment.—Watson and Scott (*Canadian Med. Assn. Jour.*, 1918, No. 8) have studied obstetrical and gynecological patients with regard to the occurrence of puerperal septic infection. Among 2096 puerperal cases there were 476, 22.9 per cent. showing morbidity. From the gynecological service there were 97 cases which could be traced to puerperal septic infection. A thorough investigation of these patients showed that in 85 per cent. of cases developing fever after childbirth the fever quickly subsides without the development of any definite pathological lesion. When a definite pathological lesion does develop it is not apparent for some time after the first rise of temperature. In the pelvis the infection starts as a wound infection of some part of the genital tract. This primary infection may remain localized for varying times or may spread by contiguity by the blood stream or by the lymphatics. When the infection spreads by contiguity of tissue, pus tubes, pelvic peritonitis or general peritonitis develop. The organisms usually found in these cases are the gonococcus and streptococcus. Lesions due to the gonococcus appear late in the puerperal period and are less severe than those caused by the streptococcus which appear early. When the infection spreads by the blood stream it is usually of the thrombophlebitic type, beginning in the thrombosed veins of the placental site. But this may occasionally rise from a primary infection in the perineum or vagina. When infection spreads by the lymphatics it gives rise usually to cellulitis or to a septicemia. This is especially serious and often results in death. It does not seem to be the type of organism which determines the severity of the infection as the situation in which that organism is growing. At present we have no means of treating primary infection of the uterus without favoring the extension of the inflammatory process to the surrounding tissues and the blood stream. Therefore all cases in the early stages should be treated expectantly. When a distinct pelvic lesion does develop it should be dealt with on surgical principles. Puerperal sepsis is the same whether the sepsis follows labor or follows abortion.

The Abuse of Pituitary Extract in Obstetric Practice.—MARCHAND (*Boletin de la Asociacion Medica de Puerto Rico, San Juan,* 1918, No. 14) relates that midwives in Porto Rico have learned the use of pituitrin and use it blindly in all sorts of obstetric cases. As a result lacerations and other complications of labor are becoming frightfully common. The sale of this drug should be restricted and it should not be placed in the hands of ignorant midwives. A recent case is described in which a primipara was given four injections of pituitary extract. When seen the woman was moribund, lying in a pool of blood, with an inverted and relaxed uterus exposed to view. In another case Marchand had time to reduce the uterus and combat the collapse which followed a terrific hemorrhage. This primipara had three injections when the cervix had scarcely begun to open. Judicial reprimand of the midwife who had charge of such a case does little good. Even in the hands of experts pituitrin is a drug which must be used with great caution. It was urged that restrictions similar to those placed on the sale of narcotics should also be enforced concerning the sales of pituitary extract.

A Case of Abdominal Pregnancy at Term.—NOBLE (*Am. Jour. Obst.,* December, 1918) reports the case of a woman, aged forty-two years, the mother of one child, three years old. As the time for her period passed the patient introduced into her uterus a catheter to bring on menstruation. After this she had at first a bloody and then a purulent discharge. She was in the hospital violently ill, with a temperature of 104°, and abdominal pain, sweating, vomiting, distention and loss of weight. She was said to be too ill for any operation, but finally improved and was able to leave the hospital and to change her residence. She continued to have a purulent discharge from the uterus and consulted physicians, who made various diagnoses. When she consulted the writer she was still having purulent discharge from the vagina. She had recovered her general health, had gained in weight, but sometimes suffered from severe abdominal pain, lancinating in character, usually occurring at night, referred to the lower abdomen and in varying location. Normal menstruation did not return. No blood had been discharged from the uterus since a short time after the introduction of the catheter. The abdomen was diffusely enlarged and no well-defined mass could be made out. On vaginal examination there was a mucopurulent discharge. The vaginal wall was dark in color, raised in temperature and boggy on palpation. A hard, globular body was felt just above the perineum behind the posterior vaginal wall, crowding the cervix so far upward that it could not be felt. By careful examination it could be made out that this was the head of a living fetus. Under rest, restricted diet and elimination from the bowel abdominal pains ceased and the general health had improved. She was then allowed to go home and told to return as nearly as possible at the latter end of the pregnancy. Abdominal section was then performed. The amniotic sac lay beneath the abdominal wall, through which could be plainly seen a vigorous fetus. The omentum and transverse colon were across the upper border of the sac and adherent. There were no adhesions between the amniotic sac and the anterior abdominal wall. An effort was made to separate the omentum and transverse colon from the amniotic sac, but the attempt resulted in rupture of the sac. A vigorous well-developed female child was delivered and cried as soon as born. The cord was tied and cut and the membranes were adherent to the omentum, transverse colon, intestines and mesentery. The placenta was very large and was attached to the mesentery of the sigmoid, the posterior aspect of the broad ligament and the floor of the pelvis. The placenta was removed until the broad ligament was reached, when a hysterectomy was performed. The mesentery was ligated and removed where the placenta had been attached, and the appendix was also removed and the abdomen closed without drainage. The mother recovered without incident and nursed her child.

Fetal Deaths during Labor.—Reed (*Surg., Gynec. and Obst.*, May, 1918) finds that out of 100 infants from 4 to 6 die during labor, or soon after, as the result of parturition. Some perish from a maternal or fetal disease of a definite character like syphilis or hemophilia, injury to the brain or pneumonia. But excluding these asphyxia is the most usual cause of death. This may be described as a condition of the infant in which there is no sign of life except the beat of the heart. It is not a pulselessness in the ordinary sense of the word, but a lack of the function of respiration. One can readily understand that this may follow coiling of the cord about the child's neck or pressure from any source upon the umbilical cord. So long as the membranes remain unruptured the danger to the infant is extremely slight, but after the membranes rupture immediate danger is present. The force of uterine contraction is sufficiently great to cause decided pressure upon the child and also to interfere with the exchange of oxygen between mother and child. The longer the contraction and the shorter the intervals between them the greater is the child's danger. Intra-uterine pressure is such that if a column of mercury stood at 80 before the rupture of the membranes it rises to 150 or more afterward. If presentation and position are abnormal some parts of the uterus are under greater pressure than others. This alters the blood supply and oxygen starvation begins with retention of carbon dioxide in the fetal blood. Compression of the cord or placenta may also occur, and if the placental site is unusually soft and spongy it may be contracted to a dangerous degree. The fact that the uterus reduces its volume may also influence the child unfavorably. The soft parts of the birth canal also expose the child to danger from unusual pressure, and this is especially marked in the first labor. It is estimated that there are three times as many stillbirths among primipara as among multipara. So too a very large child will add to the dangers of mother and infant. So the age of the mother (over thirty) and the sex of the child (male) may also be unfortunate factors. The prolongation of labor is a distinct danger to the child. This may be inferred from the fact that when the labor goes beyond one hour in the primipara the fetal mortality is 8 per cent. Should labor be over two hours the mortality rises to 18.3 per cent. In a large series of cases in which the labor lasted two hours or more 18.32 of the cases were born asphyxiated, 1.7 per cent. were stillborn and 5.5 per cent. died later. Among the four-hour cases 49.65 per cent. were asphyxiated, 5.59 per cent. were stillborn and 6.22 per cent. died during the next few days. Obviously vertex presentations are least dangerous and transverse are most dangerous, with a mortality of 39 per cent. Statistics indicate that a face presentation was a little more than one-half as dangerous as a breech, 13.21 per cent. respectively. The fetal mortality of breech presentation should be remembered in selecting methods of delivery. In breech cases the cord is compressed, the child's mouth is surrounded with amniotic liquid or buried in the soft tissues of the mother's body. Under these circumstances the child becomes asphyxiated in a few minutes and will die in from eight to ten minutes, for immediately the umbilicus passes the vulva the cord is compressed between the pelvic brim and the head and shoulders, and hence the child must be promptly delivered. In vertex presentation great care must be taken to guard against excessive compression as well as delayed labor. Paralysis of the inspiratory or respiratory center may occur while the child has a good heart-beat at birth and a good circulation, but cannot be brought to breathe. So-called "blue babies" from partial asphyxia gives the better prognosis, for the reflexes are not yet lost. In pallid asphyxia the muscle tone has disappeared and the child's heart-beat is feeble and irregular. The stage of irritation of the pneumogastric nerve has been succeeded by that of paralysis. Male children suffer more often from asphyxia than female, probably because of the greater size and also the fact that there are more male infants than female. Contracted pelvis is an evident cause for the death of the fetus in labor. The use of forceps usually results in cerebral compression to some degree, and this can be demonstrated if the stethoscope be applied while traction is made. Coma and edema of the lungs in the motor spasm of the respiratory muscles, premature separation of the normally implanted placenta and placenta previa all cause fetal death. The fetal mortality of placenta previa is at least 50 per cent., while in separation of the normally implanted placenta only 1 in 15 survive. The question of the influence of anesthetics upon the unborn child is one of considerable interest. Unless anesthesia be deep and prolonged there need be no essential harm to the child. Gas and chloroform are more dangerous than ether under ordinary circumstances. The intermittent use of gas is possible for some time without injury to the child. This is probably true to less extent of ether and chloroform. So far as twilight sleep goes, like other methods the results depend largely upon the way in which it is done. Any anesthetic continuously administered for a long time will certainly injure the fetus. Any anesthetic may be skilfully used at short intervals for a moderate time without danger of a fatal result. Pituitrin has undoubtedly caused the death of many children and can safely be used only under certain circumstances. Its indiscriminate use is exceedingly dangerous. We recognize the fact that death of the fetus may follow inspiration of amniotic liquid, meconium or vernix caseosa. The diagnosis of fetal death before delivery may be difficult. Fetal heart sounds give the best information pertaining to the state of the child. During the second stage the heart sounds should be counted at frequent intervals and observed before, during and after pain to be sure that the normal rhythm is present. When the heart-beat is greatly lessened or increased there is danger to the child. Pituitrin causes reduction in the heart-beat, but when small doses only are given the heart resumes its normal condition. Slowing of the beat, increased rapidity and irregularity are positive signs of danger. Slowing is most common and usually caused by carbon dioxide intoxication or by acidosis, which irritates the pneumogastric nerve. It is of importance only when it persists during the interval between pains. If the pulse sinks below 100 in the interval there is danger and labor should be terminated. In the further stage of involvement the pulse is 160 or more to the minute. This indicates positive danger to the infant. In the third degree the heart beat is irregular, which means threatened paralysis of the pneumogastric. When the variation exceeds 50 beats, interference should be attempted in the interests of the child. When the heart-beats cease, obviously fetal death has occurred. If proper antiseptic precautions are taken, or if the assistant, who is accustomed to do so, listens to the heart-beat of the fetus, there can be no objection to frequently listening to the heart-beat during labor. Pituitrin should never be given in doses larger than 10 minims and the child's heart-beat should be watched after this dose. Care in the use of anesthetics will also prevent fetal mortality and prolonged anesthesia must be avoided. The rebreathing of gas should not be permitted in the interests of the child. If the woman is toxic or has high blood-pressure, neither gas nor chloroform should be used. If morphin-scopolamin is given the patient must be at least three hours away from the end of her labor. From 10 to 15 per cent. of infants born in asphyxia die during the next eight days. This result occurs from atelectasis, convulsions, paralysis, pneumonia or some congenital condition which prevents the readjustment of the child's vital forces after birth.

Prevention of Gas Pains after Obstetric and Other Operations.—Emge (*Jour. Am. Med. Assn.*, September 14, 1918) calls attention to what he believes to be a wrong conception illustrated by preparatory purgation before operation. His arguments apply with equal force not only to surgical operations, but also to parturition. He does not believe that the patient is put in good condition by starving and purgation. Various authorities are quoted expressing the belief that such preliminary treatment is harmful. It is interesting to note what happens in emergency operations. In emergencies such as tubal pregnancy or Cesarean section patients do well who have not been subject to preliminary purgation. In spite of the fact that these patients must be operated on in haste they have no more complications after operation and oftentimes less disturbance than those who have been prepared by purgation. It will be remembered that in operating upon patients who have not been purged that the intestine is usually less distended, does not escape from the abdomen so readily and is far more easily handled than in patients who have been thoroughly purged before operation. Experiments on animals have shown that disturbance of the portal circulation interferes with the absorption of gas. This is an important point, because active purging in preparation for operation. When, however, the mesenteric circulation was absolutely at rest the formation of gas was comparatively little. A comparison is made of patients who had been treated before labor or operation by active purgation and those who had not. The best results with patients were observed in those who had no purgation prior to labor or operation, but received a cleansing enemata just before the operation. It was also seen that patients who had been prepared by purging before labor or operation had gas pains and cramps much more frequently than those who were not so prepared. These observations may be summarized by the statement that purging before labor or operation has much to do with producing gas pains. Should it be necessary to open the abdomen in delivery it will be found that the intestines in patients who have been purged are much more distended and difficult to control. Enemata will clear the lower bowel sufficiently for all practical purposes.

GYNECOLOGY

UNDER THE CHARGE OF

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Permanent Rectal Cloaca.—A case in which for over thirty-five years a woman defecated and urinated and for eleven years menstruated by the rectum is worthy of a final record as an evidence of the possibilities of surgery and especially of the conclusive evidence it affords that the rectum can be utilized as a common cloaca for the urine and the menstrual flow as well as for the feces for an indefinite period. The condition necessitating this novel use of the rectum was a case of extensive and incurable vesicovaginal and rectovaginal fistulæ caused by sloughing as a complication of typhoid fever. The patient was a woman, thirty-five years old, who first came under the observation of KEEN (*Ann. Surg.*, 1919, lxix, 606) in 1873. In 1872 she nursed her husband in a fatal attack of typhoid fever and then fell ill of the same disease. About the fourth week the labia minora sloughed away and both urine and feces escaped through the vagina. Six unsuccessful attempts were made to close the fistulæ by plastic operations, and in 1875, being convinced of the impossibility of success, Keen proposed to her the absolute closure of the vagina, leaving the fistulæ wide open, which she at once accepted. The operation was a success except at the